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THE DEPARTMENT OF EDUCATION IN AMERICAN UNIVERSITIES[1]

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I have been invited to discuss further the subject which you had under consideration last year, namely, the problem of turning Doctors of Philosophy into efficient teachers. There are some of you, I see by the printed reports of your earlier meeting, who regard the ability to teach as a natural gift. There are apparently many of you who are persuaded that courses in pedagogy cannot contribute materially to the improvement of a graduate of a university. In the face of such settled views, backed up by the success that many of you have attained in the teaching profession, it seems to be a bold and from some points of view a useless undertaking to come before you as I must with the assertion that ability to teach is not a natural gift and that every Doctor of Philosophy would be improved by a careful consideration in a scientific and historical way of the problems of education. I should be quite unwilling to come before you if the motive for my coming were merely to persuade you individu-

[1] An address delivered at the Association of Doctors of Philosophy of the University of Chicago, at their annual meeting, June 14, 1909. It was the climax of a series of articles and addresses published last year in the *University of Chicago Magazine,* in relation to a widely circulated *questionnaire* on "The Relations of the Doctorate to the Teaching Profession." A limited number of reprints of these articles may be had by addressing Professor H. E. Slaught, secretary of the Doctors' Association, The University of Chicago.—EDR. of the *School Review.*

ally of the importance of something that you have decided to neglect. I am here rather because you represent a certain academic opinion which is now in process of formation, or rather reformation, and which it is worth while for all of us to discuss in an impersonal way.

Until very recently university and college organizations have been based on the opinion expressed by some of you that teaching cannot be made a subject of special study and instruction. Gradually, however, a change is being worked out before our eyes. In spite of opposition and indifference, courses in education are being organized even in the most conservative institutions. Say what you will, these courses are here to stay and it is merely a matter of adjusting the relations between these courses and the rest of the work of the institution.

Before this change began, a very remarkable situation existed, in the fact that the lower schools were provided with teachers specially prepared in normal schools for their professional work, while high schools and colleges not only held to the view that teachers are born rather than trained, but even ignored and ostracized the normal schools. Thus the normal school was the only institution in this country which gave itself seriously to the task of preparing teachers and it was, and is even now, to a great extent, an institution which lies outside of our conventional educational scheme. Graduates of our high schools are recognized as prepared to enter college. If they go into college, they very frequently come back into the high schools as teachers. They are also prepared to enter the normal schools, but it is a curious fact that when they pass from the high school into the normal school they take a step which usually makes it impossible for them to return to the general educational succession of higher institutions either as students or as teachers.

All this is changing, not merely because the normal schools are improving, but chiefly because colleges and universities are seeing with more than their former insight that teachers of every grade need special preparation. Yet while institutions move, men linger. Men in physics and chemistry and mathematics and the classics have had very little interest in the department of

education. Some nobly tolerate it as a practical administrative institution related to the inspection of high schools or to affiliation of the university with the state teachers' association. As a university department, however, Education has very seldom been adopted with any degree of hospitality into the regular group of university departments.

My problem, as I see it, is to set forth the reasons, although some of you are in doubt and some are dogmatically opposed to my view, why you must recognize the universities which have established departments of education as rationally progressive. I shall not hesitate to use arguments which have direct personal application in order to enforce my conclusion.

The first fact which I wish to point out is that there is a great deal of poor teaching within our universities and colleges, and this fact can be traced to a neglect upon the part of academic men and women of the form in which they arrange their material. The investigator who has come upon some important fact in physics is very likely to be satisfied with the importance of that fact to the scientific world, and he pays little attention to the style in which he expresses that fact. One needs only to refer to the papers in any one of the technical journals to recognize that American men of science write for the most part an atrocious English style which would not be tolerated in any other calling. As a result the material which they present appeals to a very limited constituency made up of their own immediate colleagues who are so much interested in the matter which is presented that the form is entirely neglected.

This is not a failing of American students of science merely; it is a charge which can be legitimately brought against the writing of most of the German scientists. England has set us in a number of illustrious cases a very much better example. The writing of Huxley, for example, is so clear and so well organized that the material which he presented made its appeal not merely to the technical reader, but also to a very large audience of intelligent people outside of the special university group, and Huxley's influence both in England and in America is due in no small measure to the form in which he presented his excellent material.

He demonstrated as clearly as anyone can demonstrate anything that bad style is not necessarily connected with clear scientific insight and sound scientific material.

It is widely recognized that such a neglect of form as I have indicated appears in much of our university lecturing. The assumption of the ordinary university lecturer is that if he presents a certain body of material so organized that it seems to him to be fairly coherent and logical in its character, it is a matter of small moment whether it appeals to the students because of its literary form or whether it is easily intelligible to them because of its careful adjustment to their present stage of development.

Whatever specious justifications we may offer for neglect of form, we all recognize its value. We exhibit this fundamental respect for form in the assent which we give to the statement that experience is very valuable in developing strong teachers. What does experience do for the individual? It helps him to make a better and better selection of his material and to adopt more effective modes of presentation. I dare say there is no one who has observed university teaching who has not seen the common mistake which is made by the instructor who for the first time comes before a class and attempts to present the matter to which he has been devoting himself as a graduate student. Such an instructor invariably goes into too much detail in the presentation of the specific subjects in which he is more particularly interested. In my own observation I have never known this to fail in the case of an instructor in psychology, and the more highly trained the individual the more probability there is that the class will hear some detailed account of investigations which are by no means of sufficient general importance to justify the time which is given to them. The intelligent college teacher as he gains experience comes to recognize the fact that the student gets more out of a few salient points clearly made than he does out of the minutely detailed discussions of special subjects. And as the years of experience accumulate, this instructor improves as a teacher because he has learned to some extent how to select his material. Fortunately the advantages of a course of study thus carefully arranged by an experienced teacher are transmitted

through the students who take the course. The form of arrangement adopted by the great teacher is therefore likely to perpetuate itself in the work of his students. But even here the form of arrangement usually suffers as it passes to a second generation, because the reasons for the particular selection made by the original master are lost and the main outline suffers in the hands of those who do not understand the grounds for its formulation. In other words, the student unfortified with principles of selection loses in the process of imitation some of the best virtues of the great teacher. Furthermore, because the student finds a form of arrangement so easily at hand, he is very likely to regard all form as a natural or inevitable phase of instruction which will take care of itself without specific attention.

Teachers in the lower grades of schools have become very clearly conscious of the importance of suitable form for the material which they present. Take a teacher in the first grade of the elementary school as an example. The information which such a teacher can impart to her pupils is on the whole relatively very simple. Almost any adult would have enough information with regard to counting or with regard to the methods of reading and writing to contribute what is necessary in the way of intellectual achievement for a first-grade child. But the problem here is not the problem of contributing information; it is the problem of so arranging this material that it shall make an appeal to immature minds. The consequence is that the first-grade teacher is recognized as skilful just in the degree in which she is able to take ordinary intellectual material and organize it in such fashion that it shall appeal to the child in that grade. Because the problem of form is here so obvious, it is a fact that there is much greater sympathy among teachers of first grades for courses that shall give them some of the principles on which arrangement depends than there is among teachers of more advanced grades. Indeed, when we come into the high school, we find that the same prejudice exists that exists among college teachers. The high-school teacher holds ordinarily that there is no such thing as a science of education. Latin and Greek can be taught and can be taught successfully without any courses whatsoever in this so-called science

of education. If we examine the matter a little more closely, however, we shall find that Latin and Greek are capable of successful use as high-school subjects just because the material available for instruction in these subjects has been so systematically organized that almost anyone can manipulate the subject and can conduct a class. We shall become acutely conscious of this fact when we contrast the relative success of a class in Latin or Greek taught by a mediocre teacher with the unsuccess of a class in history or English, or especially in one of the sciences when taught by this same mediocre teacher. The presentation of English is by no means as simple as the presentation of the grammatical forms and translation of a lesson in the classics. The literary masterpiece in the vernacular which may be selected for presentation in the English class is capable of use as a basis for grammatical drill or as a basis for the cultivation of literary appreciation or as the basis for the transmission of historical and other types of information. The result is that most teachers in the effort to meet all of these requirements fail to meet any one of them with complete success. What is true of English is true in a painful degree of the sciences. No one has devised a course of study in physics, for example, which has been generally accepted as successful for high-school children. It is perfectly clear that there is plenty of information in the science of physics which might very advantageously be transmitted to children of the high-school age. But just how this material shall be selected, how the general principles shall be presented, has not been worked out as fully as the same problem has been worked out with reference to Latin and Greek. The consequence is that everybody is dissatisfied with the work in physics in the high school, and many are disposed to question the advantage of attempting to offer it in any form.

When we pass from the high school to the college, the distinction between the lecturer and his pupil in point of maturity and ability to apprehend logical relations is very much less than was the difference in any of the lower grades. The consequence is that when a teacher adopts a form which appeals to his own thinking, he is very likely to find his students sufficiently like

himself so that the difficulties which they encounter are not serious. He therefore comes to assume more and more that there is no such difficulty as would be suggested by the statement that intellectual material must be arranged with care in a form that shall appeal to the student. The assumption in the college of a generation ago was that if the pupil did not apprehend material in the form in which it was presented to him he must be dismissed from the course and from the institution in general. The elective system has in part overcome this attitude and there is very much more general conviction on the part of college instructors now than there was a generation ago that the demands of the student that the material shall be presented in clear and coherent form should be met. An instructor who is in competition with the other members of his own department for students in his course is likely to recognize the importance of preparing his material as clearly as possible for presentation to his classes.

I hope that what I have said up to this point will make clear what I mean by the statement that all intellectual material has form, and that the considerations that relate to form are not identical with the considerations of subject-matter taken in the abstract. Given a certain fact in biology, it may be stated in a variety of different forms and certainly some of these forms are better than others for purposes of classroom instruction. Furthermore, we all of us recognize that the better form is more likely to be adopted by the experienced teacher who has tried a variety of different modes of presentation.

Let us see where we are led by the application of these conclusions to certain problems of teaching. I take it that all of us who are interested in any science must be interested in certain general questions of the limits of instruction in this subject. I mean by that statement that if my specialty is history, I must be interested, for the sake of the best possible presentation of my subject in the university and in all schools, in the question of how far down in the lower grades this subject is to be presented. Possibly some of you will object that it is no personal concern of every student of history or every instructor in the subject to contribute to the determination of this limit. I will therefore

defend my position by saying that it is at least the concern of someone in the department. There must be someone in history and geology and biology who is interested in seeing the subject so administered that it shall have its proper recognition in the lower and in the higher institutions. If we admit that someone in the department must be interested in the formulation of this material and in securing its recognition, I think that it is further obvious that such recognition and such organization of the material must be in the hands of those who have the broadest and most comprehensive view of the subject. To allow someone who is a relatively untrained member of the department or who does not know the whole field to organize the material is to neglect the highest interest of the subject itself. Now, some such evasion as this is exactly what is going on in most of our discussions of the subjects which we are teaching. A college professor is very likely to say that he is absorbed in carrying on researches in biology or in botany or in historical subjects, and because of his absorption in these researches he has no time or energy to consider the question of whether these subjects should be taught in the high school, and if they should, how they shall be conducted.

Even this man ought to recognize that his absorption in research involves some interest in a few graduate students and as a matter of practical activity he finds himself in contact with students who come to him from the lower schools. I am sure that we are all of us acquainted with the complaints that such a specialist is constantly pouring into our ears with regard to the bad preparation of these students from the lower schools. They do not know how to think, we are told, and they have no ideas. Their information is loose and disorganized. If they could only have commenced with this great specialist and could have done their work with him from the beginning, how much better they would have been prepared for the type of work that they now rise into in the graduate school under his guidance. Why does not this specialist stop for a moment and consider that all of this complaint which he is making against the lower schools is nothing more nor less than a criticism of his own neglect for these

lower schools? I once had a colleague who constantly criticized the physics in the lower grades, and when I called his attention to the large service which he could do for high-school education by planning a course in physics that should be adequate, the only answer which he had was that the subject ought not to be treated in the high schools. I asked him if he had any good grounds for this assertion and so far as I could learn the only ground that he had was that it was so badly taught that it should not be taught at all. Consider the narrow view of anyone who in this day and generation would hold that the high-school student, especially that student who is not going to go forward to college, should not be introduced to some part of the science of physics. This student will spend his life among trolley lines and telephones and other similar electrical devices. Is the school not to supply him with any of the information that would make him intelligent with regard to the character of these devices? Such a position as that assumed by our austere physicist is certainly untenable, and the proper answer to anyone who holds that physics cannot be arranged for presentation in the high schools is that that is not the question under debate. Physics is going to be taught in the high school, and all of the other sciences are to be taught. The question under discussion is, who shall organize them for this presentation? Shall we allow relatively untrained students who go into the high schools to do the work of organizing these subjects, or shall some of our better scholars devote their highly trained energies to the preparation of this material? I think that there can be no doubt as to the final answer to this question. The organization for presentation of each of the subjects of instruction is a matter of very highest importance and will ultimately command the services of the best-trained members of each of the departments.

This conclusion to which we have come is the foundation of the demands which we make from the point of view of the department of education for a careful scientific study of the principles of education. Whoever devotes himself seriously to organizing the subject-matter of any given department will in-

stantly become aware of the fact that he is in need of certain types of information not included in his own department.

For example, many of the difficulties of organization of our courses of study in colleges and in other schools would be very much reduced, if not entirely eliminated, by a careful consideration of the historical development of these institutions and of the courses of study which are now offered in them. I am astonished to find how little college men know about the historical development of their own institutions. In a vague general way they know something about the origin of mediaeval universities, but they have devoted very little attention indeed to the history of American universities and their development. We are reminded in much of the current writing of American colleges of the fact that the American college of a generation or two ago was distinctly a professional school preparing for a certain number of so-called learned professions. The course of study has been modified rapidly in recent years because the American college has become a general center for the accumulation of all sorts of knowledge and for the presentation of this knowledge to the most diverse types of students.

Again, not only must our specialist be acquainted with the historical development of schools, but he must also be acquainted with some of the facts which grow out of the careful study of mental processes. In a sense we are all of us students of mental processes. We are all of us interested in the question of making clear to an immature mind new material. It is sometimes very obvious that the difference between an immature mind and the trained mind is so large as to offer a serious obstacle to the transmission of knowledge. The physiologist who tries to describe a microscopic section to one of his classes and then to utilize this section for the reconstruction of a solid organ encounters a very nice problem of training space perception. The type of information that is required for projecting a flat surface into depth so as to make up a solid object is a very highly cultivated type of space imagination. A similar difficulty to that which the physiologist encounters presents itself to the teacher of solid geometry. The teachers of solid geometry found a few

years ago that one of the most serious difficulties in their work was to induce the students to imagine the solid figures from the bare outlines given in the textbooks. Here again the bare outlines, while enough to suggest solid figures to the trained mind, were entirely inadequate for the uncultivated mind. The skilful teacher of geometry and physiology must be sufficiently acquainted with the nature and difficulties of space perception so that they will devote a suitable amount of attention to the cultivation of the type of imagination necessary to overcome these difficulties.

Turning from these fairly obvious examples of the necessity of studying mental development, we may call attention to the fact that there are other somewhat less obvious differences in mental capacities which are of first-class importance to the teacher and should be understood by him if he is to work out any adequate adjustment of his relation to his students. The good teacher has sympathy for his students, so that he formulates his material in a variety of ways. Whether he does this because he has learned through past practice that material must be thus presented in a variety of different ways in order to appeal to all of his students, or whether he does it because he is consciously aware of the fact that the mental processes of another individual are different from his own, he is in either case dealing with a principle of teaching rather than a part of his own science.

It is obvious that everyone who is successful in the art of teaching must have complied with the demands indicated in the foregoing discussion; that is, he must have organized his material in such a way that it has significance not only for his own mind but also for the minds of others. The teacher who does not sympathize with his pupils fails very commonly because he does not recognize the type of fact which we have just been discussing. He insists that everyone should think the formula out as he has thought it out, and he has no patience whatsoever with the student who is not able to comply with this demand.

Some of you are doubtless raising the question in your own mind as to where this information is to be gained with regard to the peculiarities of different students, and I am frank to say that

the information is at the present moment not available in such form as to be universally accessible, and I cannot with any degree of assurance promise that within any short period we shall be able to furnish a formula which shall cover all these individual differences. But I am prepared to make a very vigorous demand for intelligent support in the investigation of these individual differences. Certainly the instructor in zoölogy and Latin and Greek cannot be called upon to make a minute examination of the mental characteristics of all of his students. He ought to be sympathetic with the efforts of others whose special business it is to make such investigations. I do not think that it has been customary for the members of these special departments to be fully in sympathy with the efforts of the educational psychologist to define the differences here under discussion. It is a part of the business of every department of education to define these individual differences and make them available in some generalized form. That we have not yet accomplished the task or that we cannot say definitely when the task will be accomplished is simply the result of the general fact that academic men and university organizations have in general neglected and criticized this type of study.

In attempting to convince a body like this of the practical importance of such considerations as this, it is fair to answer the objections that have frequently been raised that education, as it is taught in our university departments, has not contributed up to this time a full solution of the problems that are here suggested. Let me call your attention, in the first place, to the fact which has been brought out in the earlier discussion, that most of the pedagogical doctrines now recorded in the books on these subjects relate to the lower grade of schools. One notable effort has been made to contribute to the literature of mental processes in higher grades. President G. Stanley Hall has written a book entitled *Adolescence*. It is a matter of regret to me that it is quite impossible for me to recommend this book as a clear statement of either the problem or the available material bearing upon the mental abilities of high-school children, and yet it represents a very legitimate effort to describe a special period of

mental life and to lay down certain general principles which must be utilized in the preparation of a course of study for this period of life. If we criticize Hall's statements and his material, it becomes immediately our responsibility to correct his defects by a collection of better material, and the only way that I know by which this can be accomplished is to interest those who are in direct contact with high-school children in the observation of their traits and in the development of a body of knowledge which shall ultimately give us the information which we need.

I have made this proposition from time to time to groups of high-school teachers and I must confess that the response which I have received makes me very pessimistic as to the outcome of the plea. If the work will not be done by the regular high-school teachers, then we must have institutions which shall devote themselves to the study of this problem and shall have available high-school students who can be made the subjects of investigation. Such an institution we have in the School of Education in this University. Such an institution also exists in Teachers College. But here again, it is extremely difficult to find those whose interests are in the careful scientific examination of these educational problems. We engage a high-school teacher to teach Latin or German or any of the other conventional subjects and we find that he is absorbed in his specialty. We find, furthermore, that he has been trained all through his graduate study and even in his college course to hold to the prejudiced and, I believe, absolutely unjustifiable position that his only function as a prospective teacher is to become acquainted with the subject-matter with which he is to deal. It takes us a long while to break down this prejudice in the case of a new teacher, and by the time we get the prejudice broken down we find that the teacher has become so valuable and competent in the actual manipulation of the high-school children toward whom he or she has now succeeded in cultivating a scientific attitude that he is very likely to go to some other position and dissipate his acquired knowledge. There is of course a very large body of high-school material produced which has certain fundamental principles underlying it. A good textbook means that the teacher has selected the material in a

certain subject and has arranged it according to the best of his experience. It is unfortunate that most editors of textbooks do not give us the principles upon which they have operated. Indeed, it must be confessed that in many cases they do not themselves become clearly conscious of these principles.

But not to lose sight of the main point—all this goes to show that we must cultivate in academic circles at least a tolerance for this sort of study in those who are preparing to teach in the high schools. We must, furthermore, cultivate a tolerance for similar studies in relation to all schools; we must dissipate the prejudices which now express themselves in such statements as these: the great teacher is born, like the poet; there is no necessity of any special study except the study of subject-matter, and there is no necessity of institutions and departments which make it their special business to investigate educational problems and develop general principles of education.

Thus far I have argued as if the whole matter were in question and as if the department of education had to defend itself from the beginning and show why it should be brought into existence. Let me now take a somewhat different attitude in the matter and call your attention to the fact that the educational departments of our American institutions are rapidly coming to be recognized as among the most influential and important departments in the institution. I think that no one who is acquainted with Columbia University can be in any doubt at all as to the importance of Teachers College in that organization. It is by all odds the most influential single department in carrying Columbia University to the country at large. The reason for this is that the present educational situation in this country is so thoroughly unorganized that any kind of leadership is sure to have a hearing and sure to have a very large influence. The problem of directing educational activity rationally which has been neglected for so many years has now reached an acute stage and is demanding some solution with such a degree of urgency that the solution must be provided by our educational institutions.

From a merely economic point of view it is obvious that the country demands a better treatment of educational questions. We

spend for schools in this country more than we spend for any other public institution except our penal institutions, and this large public fund cannot be administered without some careful and scientific consideration of the way in which it shall be administered. The enormous endowments which are coming to our American institutions are bringing, in such institutions as the Carnegie Foundation and the General Education Board, the demand for a more intelligent organization and a clearer statement of the purposes for which our college endowments are being spent.

You may neglect, if you like, as individuals, the problem of the arrangement of subject-matter which you teach. You may absorb yourself, if you like, in what you please to call mere research. If you do neglect the form in which this material is presented and if you do refuse utterly to consider the problem of fitting this material to other minds, you will find that the influence of your research will be very much smaller than it otherwise would be and you will find that you are dropping behind in a movement which has already come to exercise such an influence in academic circles that it is, from a general point of view, by no means negligible. I personally have reached the state of mind where I receive criticism of the department of education with perfect equanimity. There was a time when the departments of physics and biology and of the other sciences were subjects of criticism. They were grudgingly given the somewhat uncertain footing of a separate organization in a school of science. Many of the great eastern universities began in this way and regarded these new bodies of knowledge with a great deal of suspicion and contempt. But these new bodies of knowledge have now reached the stage of development where they can meet the contempt of the older departments with perfect serenity. Indeed, it is the classics which are now on trial for their lives rather than the sciences. The registration of scientific departments has increased with such enormous rapidity that the anxiety for registration is no longer in the science departments.

A like change is coming in regard to the study of education as a formal science and as a general prerequisite for admission

to the teaching profession. So long as the demand for economy in education was not urgent, bad instruction in the universities could be tolerated. Bad instruction in the high schools was tolerated because the high-school courses were under serious consideration and many intelligent persons were in doubt as to the desirability of offering at public expense anything beyond a simple elementary education. But the moment the demand for economy becomes urgent, as it has come to be in our present-day life, and the moment the high school becomes an established institution and the college a common place of instruction for the sons and daughters of the ordinary man, the demands for a study of education are so imperative that we of the education department are no longer on the defensive. We are clearly in a position to offer something that the other departments must seek. We should be very glad indeed to make contributions to the work of other departments as soon as they arrive at that degree of intellectual maturity where they recognize the importance for their own existence of this special study of education. In the meantime I commend to the consideration of any of you who are in doubt as to the importance of the special treatment of educational problems the more general consideration with which I started, namely, the consideration that our higher education suffers because form is neglected and often unrecognized in the eager pursuit of subject-matter.